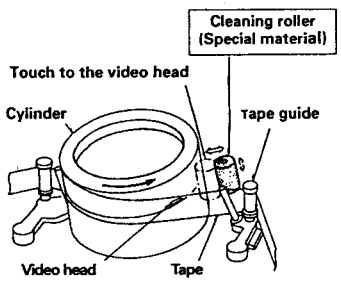
BEDIENUNGSANLEITUNG

HITACHI

VT-F90EM
(JU),(HKN),(SWN)

AUTO HEAD CLEANING SYSTEM

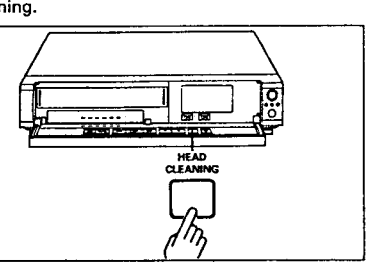
This system cleans the video heads automatically when a cassette is inserted and ejected or the operate switch is turned on or off while a cassette is in the VTR, to prevent dirt from accumulating on the heads.



■ **Manual Head Cleaning**

The auto head cleaning system operates when a cassette is inserted and ejected or the operate switch is turned on and off while a cassette is loaded and the heads are cleaned automatically. If the heads are still dirty, clean the heads manually as follows.

- Insert a cassette and press the HEAD CLEANING button while the VTR is in the stop mode. The cleaning roller cleans the heads. When the TV is turned on, "HEAD CLEANING" will appear on the screen.
- When the HEAD CLEANING button is pressed once, the head cleaning operation is performed once. (It takes about 10 seconds)
- If dirt cannot be removed, perform the cleaning operation several times.
- If dirt cannot be removed when the head cleaning operation is performed several times, consult your dealer.
- Mechanical sound is heard slightly during head cleaning.



HOW TO ENJOY THIS MULTI-SYSTEM VIDEO DECK

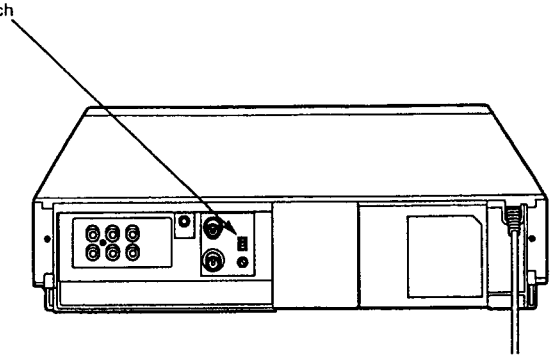
There are various colour broadcasting systems in different parts of the world. Your TV set can receive TV broadcast in your area, but perhaps cannot receive colour broadcasts in other countries. There are tapes recorded with different colour broadcast systems. Use this unit after fully understanding the following.

- **Broadcast systems that can be recorded with VT-F90EM** **Table 1**

Broadcasting system for colour TV		B/G-PAL	I-PAL	D/K-PAL	B/G-SECAM	D/K-SECAM	L-SECAM	NTSC *3
Major Countries		Australia Germany Kuwait India Italy Singapore U.A.E Malaysia	Great Britain Hong Kong	China	Saudi Arabia Greece Lebanon Morocco Egypt	Bulgaria Ivory Coast C.I.S. Mongolia	France	USA Canada Japan Philippines Mexico
VTR Recording mode	PAL-SP *2	YES	YES	YES				
	PAL-LP	YES	YES	YES				
	MESECAM-SP				YES	YES		
	MESECAM-LP				YES	YES		
	SECAM-SP				YES	YES	*1 (YES)	
	SECAM-LP				YES	YES	*1 (YES)	
	NTSC-SP							YES
	NTSC-LP							
	NTSC-EP							YES
Position of G/I/K switch *4 (See below for the location of this switch)		G	I	K	G	K	—	ANY

*1 SECAM recording from VIDEO IN jack is possible, however, L-SECAM TV tuner is not built-in, therefore extra separate L-SECAM TV or L-SECAM VTR which is provided with VIDEO OUT jack is required.
*2 Suffixes "-SP", "-LP" and "-EP" mean the tape speeds of recorded tapes.
*3 In addition to the above recording NTSC 4.43 for VTR recording is possiblle only for dubbing purpose from NTSC 4.43 signal from other VTR.

*4 G/I/K switch



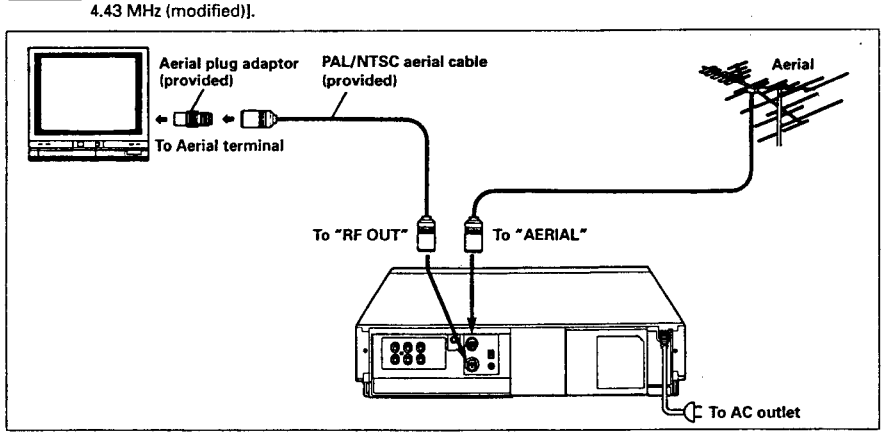
• **Types of tape playable with VT-F90EM and TV set to be connected** **Table 2**

VTR playback mode \ TV system	B/G-PAL colour TV	I-PAL colour TV	D/K-PAL colour TV	B/G-SECAM colour TV	D/K-SECAM colour TV	L-SECAM colour TV	NTSC 3.58 colour TV	NTSC 4.43 colour TV	Multi-system colour TV (for example HITACHI CMT-2518/2718/2918)
PAL-SP	YES	YES	YES						YES
PAL-LP	YES	YES	YES						YES
MESECAM-SP				YES	YES				YES
MESECAM-LP				YES	YES				YES
SECAM-SP SECAM-LP (French SECAM)				YES	YES	*5 (YES)			YES
NTSC-SP	*6 (YES)	*6 (YES)	*6 (YES)				YES	YES	YES
NTSC-LP	*6 (YES)	*6 (YES)	*6 (YES)				YES	YES	YES
NTSC-EP	*6 (YES)	*6 (YES)	*6 (YES)				YES	YES	YES

*5 L-SECAM RF converter is not built-in, but SECAM signal is obtained from VIDEO OUT jack for French SECAM TV.
*6 It is possible to play back an NTSC recorded tape when the TV has vertical sync adjustment circuitry (or volume) for 60 Hz.

INSTALLATION

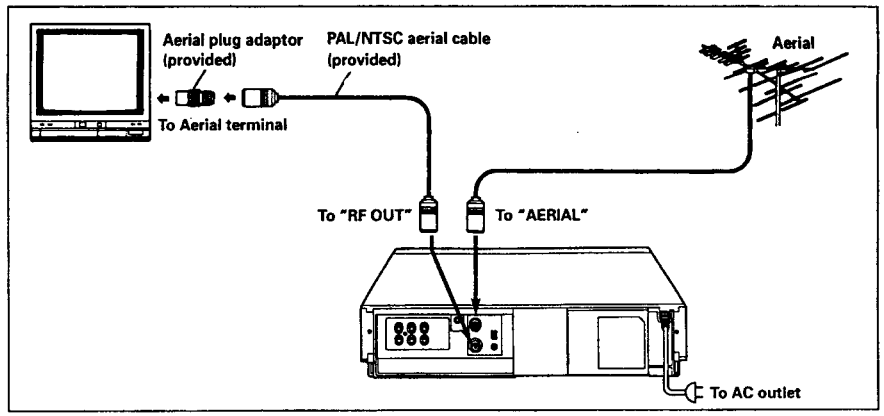
Type 1 When combined with a multi TV set [PAL: System B&G, SECAM B&G, NTSC 3.58 MHz (Standard) or 4.43 MHz (modified)].



1. Remove the aerial cable from your TV set.
   Place this cable into the terminal marked "AERIAL" on the VTR.
2. Connect your TV to the RF OUT terminal with the supplied PAL-NTSC aerial cable and aerial plug adaptor.
3. Plug into the mains.

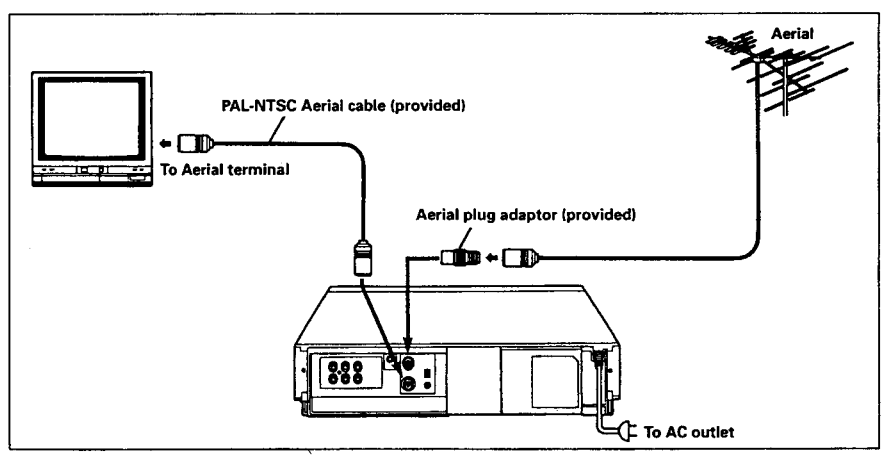
NOTE: The G/I/K select switch can be set to any position.

Type 2 When combined with a PAL (System B&G, D&K or I), SECAM (System B&G or D&K) TV set.



1. Remove the aerial cable from your TV set.
   Place this cable into the terminal marked "AERIAL" on the VTR.
2. Connect your TV to the RF OUT terminal with the supplied PAL-NTSC aerial cable and aerial plug adaptor.
3. Plug into the mains.
4. Set G/I/K select switch matching the TV to be connected.
   Set to "G" when connected to a PAL (System B&G) or SECAM (System B&G) TV.
   Set to "I" when connected to a PAL (System I) TV.
   Set to "K" when connected to a PAL (System D&K) or SECAM (System D&K) TV.

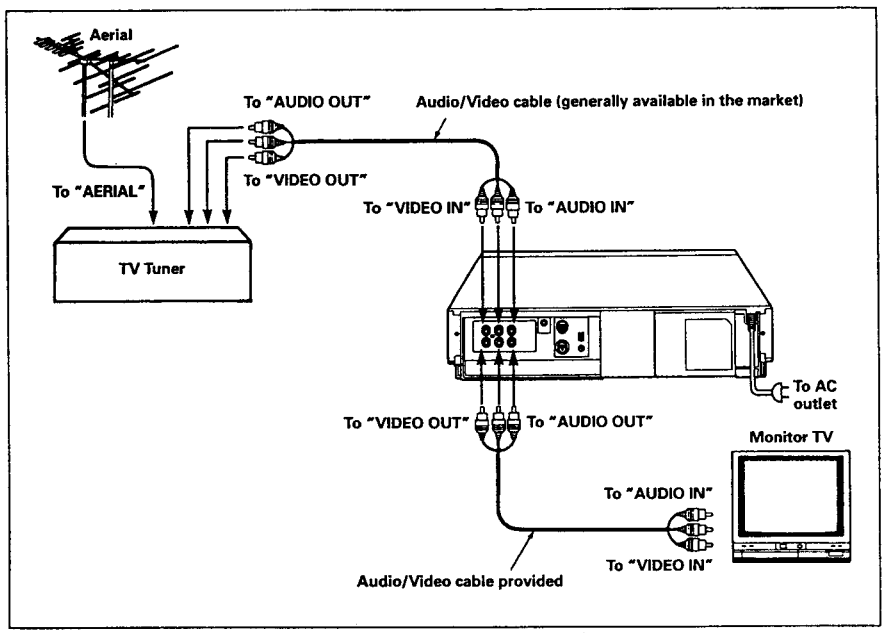
Type 3 When combined with an NTSC (standard 3.58 MHz) TV set.



1. Connect the aerial to the aerial plug adaptor (provided) and then connect it to the "AERIAL" on the VTR.
2. Connect the one end of the PAL-NTSC aerial cable (provided) to the "RF OUT" terminal of this unit and the other end of cable to the aerial terminal of the TV set.

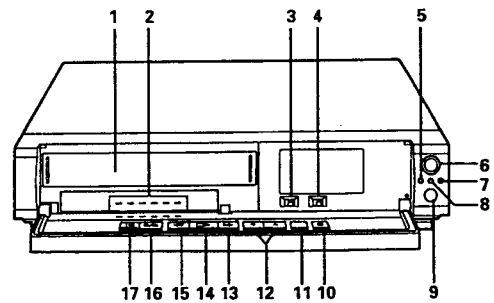
NOTE: The G/I/K select switch can be set to any position.

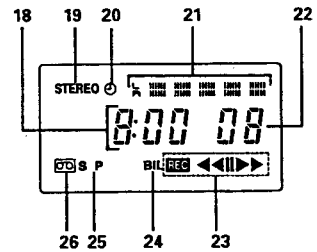
Type 4 When combined with a SECAM (System L) TV tuner and monitor TV.



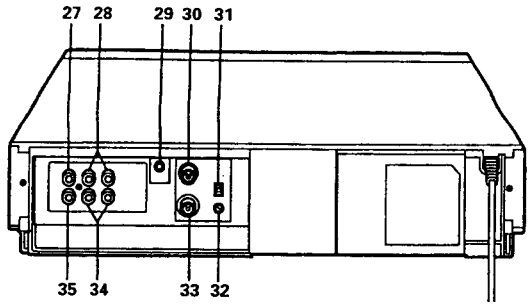
Notes: • When recording a SECAM (System L) signal, a TV tuner and monitor TV will have to be bought separately. They are not available from Hitachi.
• Playback of a SECAM (System L) recorded tape is possible when the unit is connected to a MESECAM (System B&G) TV as in Type 2 as well as with the above connection.

CONTROLS AND FUNCTIONS





1. **Cassette compartment**
Insert a cassette through the door, and loading will be completed automatically.
Note: Power is turned on automatically when a cassette is loaded.
2. **Colour mode indicators**
Indicates the mode corresponding to the colour mode which is being recorded or played back.
3. **SECAM/MESECAM switch**
Use this to switch between SECAM and MESECAM if you record the SECAM broadcast signal.
4. **AI switch**
Switch this during playback for the optimum picture.
AI: Suppresses noise and provides a playback picture with sharper edges.
NORMAL: The AI feature is switched off.
5. **⏻ STANDBY indicator**
Lights whenever the VTR is connected to the activate mains supply.
6. **PUSH OPEN button**
Press this button to open the front door of the VTR.
7. **REC (record) indicator**
Lights while the VTR is recording.
8. **I OPERATE indicator**
Lights when the VTR is connected to the activate mains supply and the OPERATE switch of the VTR is turned on. The indicator goes off when the OPERATE switch is turned off.
9. **Infrared ray receiving section**
Receives infrared rays from the remote control unit.
10. **REC/IRT button**
Press the REC button once to start recording.
Pressing again lets you select a recording time within 4 hours. After recording for the preset time, the VTR will automatically shut off. This is convenient when you go out during recording.
11. **HEAD CLEANING button**
Press this button to manually clean the video heads when the dirt cannot be removed by auto head cleaning.
12. **TV PROG buttons**
Select the TV programmes you wish to view or record by pressing these buttons.
13. **F.FWD (fast forward) button**
Press to activate fast forward.
Press this button during playback and forward playback picture can be viewed at high speed.
14. **PLAY button**
Press to start play.
Note: When a cassette (with its erase prevention tab removed) is loaded, playback starts automatically.
15. **REW (rewind) button**
Press to start rewind.
Press this button during playback and reverse playback picture can be viewed at high speed.
16. **STOP/EJECT button**
If this button is pressed, while the set is operating, the running of tape stops and all operating modes are cancelled (except for timer recording). The cassette is ejected, when this button is pressed again in STOP mode.
Note: Power may be on or off when removing the cassette.
17. **OPERATE switch**
Turn the system power on and off.
18. **Clock display**
This displays the current time when the power is off. When power is turned on, you can switch the display between the clock ,linear time counter and tape remaining time by pressing the CLOCK/COUNT button on the remote control.
19. **STEREO indicator**
Will light when receiving a stereo broadcast.
20. **Timer indicator**
Will light when turning power off after programming. If you turn the OPERATE switch off to stand by for timer recording while a cassette without its record-protect tab is inserted or a cassette is not loaded, this indicator flashes.



21. AUDIO LEVEL indicators
Show the recording levels of each audio channel during recording and the recorded levels during playback.

22. TV station number display
This shows the TV station number corresponding to the station selected.
The "L" indicator appears when you select the AUX position by pressing the TRANS/AUX button on the remote control. "L" position is used to record or watch the programme input at the AUDIO IN/VIDEO IN jacks.

23. Mode indicators
- "▶" appears during the playback mode.
- "REC" appears during the record mode.
- "◀◀" appears during the rewind mode and flashes during the rewind visual search mode.
- "▶▶" appears during the fast forward mode and flashes during the forward visual search mode.
- "❚❚" appears during the play/record pause mode.
- "❚❚▶" appears in the continuous frame advance mode.
- "❚▶" appears during the slow motion playback mode.

24. BIL indicator
Will light when receiving a bilingual broadcast.

25. Tape speed indicator
Shows tape speed during recording and playback.
SP — Standard play **LP** — Long play (PAL)
EP — Extra long play (NTSC)

26. Tape indicator
Lights when cassette is loaded in the compartment.

27. VIDEO IN
Receives video signals from a camera, or another VTR.

28. AUDIO IN (L),(R)
Receives audio signals from a camera, external sound equipment or from another VTR.

29. EDIT IN socket
Connect a camera pause cable.

30. AERIAL input socket
Connect an external aerial.

31. G/I/K select switch
Set this switch to match your TV.

32. RF CHANNEL control
Used to adjust the video channel correctly.

33. RF OUT socket
Connect to TV aerial input.

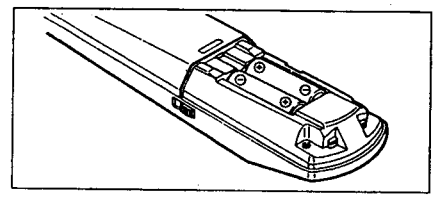
34. AUDIO OUT (L),(R)
Permits audio connection of your unit to a monitor or another VTR.

35. VIDEO OUT
Permits video connection of your unit to a monitor or another VTR.

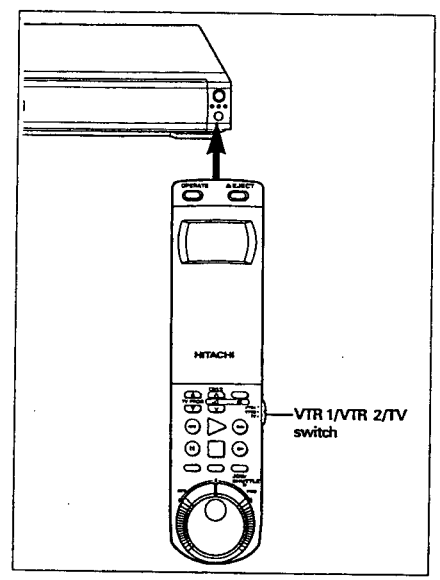
REMOTE OPERATION

You can operate the VTR from a distance using the Infrared Remote Control unit which performs the same functions as the corresponding buttons on the VTR.

Power source of infrared remote control unit
The infrared remote control unit is powered by two batteries (size IEC standard R6). The life of the batteries is about a year although it depends on the number of times the unit is used. Replace the batteries when operation is not possible or when the distance becomes too small.



Remote operations
To operate the VTR with the remote control, set the VTR 1/VTR 2/TV switch on the remote control unit to the VTR 1 position, then point it at the receiver on the front of the VTR.

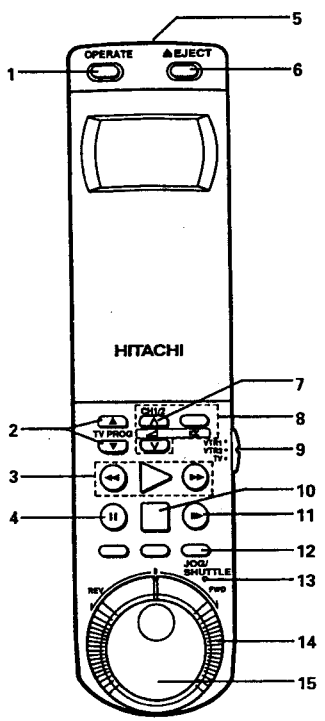


VTR 1/VTR 2/TV switch
The remote control unit provided is designed to operate two VT-F90EM units and 13 different types of TV.
- Refer to page 39 when using the remote control to operate the TV.
- Follow the procedure below when operating two VTRs.

For tape dubbing, as an example, recording VTR and playback VTR can be controlled by a single remote control unit. When controlling two VTRs, operate the other VTR as the VTR 1 and this VTR as the VTR 2. However, this VTR has been preset to be controlled as the VTR 1. Therefore, set this VTR so it can be controlled as the VTR 2 by following the "REMOTE CODE 1 or 2" section on page 29.

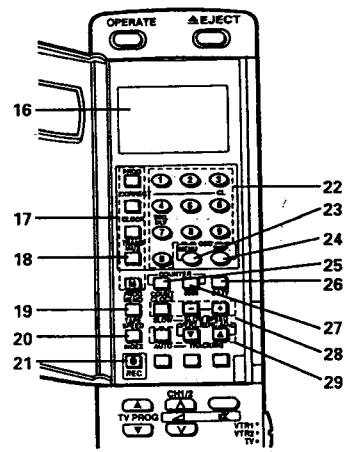
REMOTE OPERATION

Controls and functions



1. **OPERATE:** Same as OPERATE on the VTR (turns operate on/off).
2. **TV PROG:** Same as on the VTR.
3. **Play/rewind/fast forward:** Same as on the VTR.
4. **Still/pause:** Press to pause during recording. Press to view a still picture during playback. Press again to release.
5. **Transmission window:** Transmits commands to the VTR.
6. **EJECT:** Press to eject a cassette.
7. **CH 1/2:** Select the desired audio channel while playing a tape.
8. **TV control buttons:** Used for controlling the TV.
   The VTR 1/VTR 2/TV switch must be in the TV position.
9. **VTR 1/VTR 2/TV**
   - Set to TV to control the TV.
   - Select VTR 1 or VTR 2 to control two VTR units.
10. **STOP:** If this button is pressed, while the set is operating, the running of tape stops and all operating modes are cancelled (except for timer recording).
11. **F.ADV:** Advance the picture by one frame during still playback. See page 25 for details.
12. **JOG/SHUTTLE:** Press this button to operate the VTR with the jog dial and shuttle ring on the remote control unit. The JOG/SHUTTLE indicator below the button is turned on and off by pressing this button.
    The jog dial and shuttle ring on the remote control are activated only when the indicator is turned on.
13. **JOG/SHUTTLE indicator:** Lights when the JOG/SHUTTLE button is pressed and its function is turned on.
14. **Shuttle ring:** During play or still play, turn this ring to speed up or slow down the playback speed at a smooth variable tape, for everything from slow motion to visual search. Releasing the ring returns to play or still play.
    The JOG/SHUTTLE indicator must be on to operate these controls.
15. **Jog dial:** Every time the jog dial is turned to a click position during play or still play, the tape moves forward or backwards one frame at a time.
    The JOG/SHUTTLE indicator must be on to operate these controls.

Controls and functions

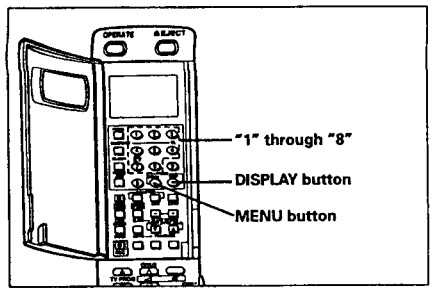


16. **Clock/timer display:** While setting the clock/timer, this display will prompt you through the procedure. After setting the clock, the display shows the clock time.
17. **Clock/timer programme buttons:** These buttons are used for setting the clock and programming the timer.
18. **TRANS/AUX:** Transfer the clock setting or timer programming information on the remote control unit to the VTR. And also used to select line input to record or view the program input through the VIDEO and AUDIO input jack.
19. **TAPE SPEED:** Select the tape speed for recording. The playback speed is automatically set to the speed used in recording.
20. **INDEX:** Used for INDEX and GO-TO functions. See page 25 for complete information.
21. **REC:** Same as on the VTR.
22. **10-KEY button**
    - Press two numbers to select a TV station.
    - Also use for setting the clock and programming the timer.
23. **MENU:** Press to review the timer programme, recall the VTR set-up menu, and select the language of the on-screen display.
24. **DISPLAY:** Controls the On-Screen Display. See page 28 for details.
25. **COUNT/CLOCK:** Press to switch the VTR display between the clock time display, tape remaining display and linear time counter display.
26. **CATV:** This button is used to preset CATV stations into the VTR's channel scan list.
27. **0000:** Used for counter reset button when the linear time counter is displayed in the VTR's display.
28. **SLOW/SLOW SPEED:** Used for slow motion play.
29. **TRACKING:** The VTR has an automatic tracking feature that will adjust the tracking whenever you insert a tape or press the PLAY button. The tracking can also be adjusted manually by pressing the MANUAL TRACKING buttons. The automatic tracking feature is turned off when-ever you press the MANUAL TRACKING buttons. Press the AUTO TRACKING button to turn the automatic tracking feature back on after you have adjusted the tracking manually.

Note: The infrared rays will bounce off the walls and eventually reach the receiver on the VTR, but for best results transmit the rays directly to the receiver.

ON SCREEN DISPLAY

Pressing the MENU button will display various menus on the TV screen.

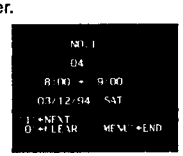


1. Turn on the OPERATE switches of the VTR and the TV, then set the TV to the pre-tuned video channel.
2. Point the remote control at the receiver on the front of the VTR.
3. Press MENU button. The "menu", as illustrated, will appear on the TV screen.

Press one of "1" ~ "7" to select the required display.

① Checking (reviewing) the programme information

- Press "1". The TV screen will display for 1 minute the information you entered for the lowest programme number.

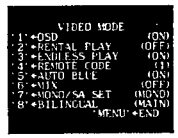


- Press "1" again if you want to view the next programme information.
- Pressing "0" will clear the programme.
- Press the MENU button to return to the original picture.

② Video mode setting

You can change the VTR mode as required.

- Press "2". The "menu" as illustrated, will appear on TV screen.
  Press "1" through "8" to select the required function.



■ OSD [ON] or [OFF]

Press "1" to change ➡

[ON]: Whenever you change the mode, the new mode is automatically displayed on the TV screen for a few seconds.

Note: If the DISPLAY button is pressed with the OSD ON, the following are obtained.
1st Press •••• Calls up the mode display on TV screen.
2nd Press •••• Clears the display.

[OFF]: The OSD will be switched off and nothing will be displayed on the TV screen. When this is selected, no operation mode will be displayed on the TV screen if the VTR is operated. This mode is useful to prevent recording of the On-Screen Display during tape copying.

■ RENTAL PLAY [ON] or [OFF]

Press "2" to change ➡

[ON]: The VTR will automatically start playback when a cassette with the record-protect tab removed is inserted into the VTR.

Then the VTR will enter the rewind mode when the tape reaches its end or when the VTR plays the non-recorded section for approximately 30 seconds, and then VTR will eject the cassette at the beginning of tape and turn the power off.

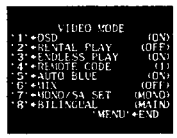
[OFF]: The rental play feature is switched off. (However, the VTR will automatically start play when a cassette with its record-protect tab removed is inserted into the VTR).

Notes:

- It is impossible to set both the RENTAL PLAY and ENDLESS PLAY functions to [ON] at the same time. If you attempt to do so, the other function is automatically set to [OFF].
- When a cassette with its safety tab is loaded, rental play does not operate even if this function is set to [ON].

■ ENDLESS PLAY [ON] or [OFF]

Press "3" to select ➡



[ON]: You can play the tape from the beginning to the end repeatedly. while in the endless play, you advance and visual search operations, however, this does not mean switching off the endless play feature.
To switch off the endless play, you must select [OFF] with this display.

[OFF]: The endless play feature is switched off.

■ REMOTE CODE [1] or [2]

Press "4" to select ➡

This display lets you control your VTR with the "VTR 1" or "VTR 2" position of the VTR 1/VTR 2/TV switch on the remote control unit.
This is convenient when you want to add another Hitachi VTR to your system, and control both VTRs with the same remote control unit.
The "VTR 1" position of the VTR 1/ VTR 2/TV switch on the remote control will control the VTR you named [1] with this display, and the "VTR 2" position will control the VTR you named [2] with this display.
[1]: Your VTR will respond to the "VTR 1" position on the remote control.
[2]: Your VTR will respond to the "VTR 2" position on the remote control.

Note: The VTR will only respond to the remote code setting ([1] or [2]) you have selected. If you select [2] display, you must set the VTR 1/VTR 2/TV switch on the remote control to the "VTR 2" position before the VTR will respond to the remote control.

■ AUTO BLUE [ON] or [OFF]

Press "5" to select ➡

[ON]: The TV screen becomes blue when a tape without a recording is played back.
[OFF]: The TV screen does not become blue.

■ MIX [ON] or [OFF]

Press "6" to select ➡

[ON]: The VTR plays both the VHS Hi-Fi sound and linear sound at the same time.
[OFF]: The VTR plays either the VHS Hi-Fi sound or linear sound.

Notes: This display has no effect when the L and/or R audio level indicator do not light on the VTR's display.

■ MONO/SA SET SELECTION
(Only for U.S.A. or Canada)

Press "7" to change ➡

Some TV stations broadcast another sound channel along with selected stereo programmes called the SAP (Second Audio Programme). The SAP audio is sometimes used to broadcast the second sound track of a bilingual movie.
If desired, you can record the SAP audio on both the Hi--Fi and linear sound tracks by changing the SAP menu display to "SA". For normal recording, leave the SAP display set to "OFF".

- When "OFF" appears in the menu display, the SAP function is turned off, and the VTR will not record the SAP.
- When "SA" appears, the SAP function is turned on and the VTR will record SAP audio when it is broadcast.
- In some fringe viewing areas, the stereo signal may not be strong enough for quality reception. The signal may drift or become noisy. Should that occur, select "MONO" to receive clearer, cleaner sound.

■ **BILINGUAL [MAIN] or [SUB]**
(Only for Japan)

Press "8" ➡ to select

[MAIN]: Main language is recorded on the linear track.

[SUB]: Sub (foreign) language is recorded on the linear track.

③OSD effects demonstration

You can demonstrate OSD effects used in this VTR.

- The pictures demonstrating the OSD effects are each displayed for about 10 seconds.

Press "3" ➡

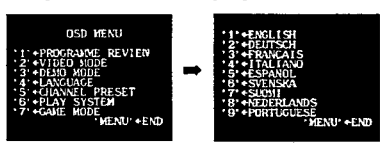
Note: When you select German following the procedure shown below, the OSD effects are demonstrated in German.

- To stop the demonstration, press MENU button.

④Change of language

You can change the language displayed on the TV screen.

- Press "4". The 9 languages are displayed on the TV screen, and then press the number button 1 through 9 to select the language.



- When "2" is pressed, for example, the OSD menu will be displayed in German. When you operate the VTR hereafter, the mode display is in German.

⑤Pre-tuning of built-in TV tuner

- Press "5". The CHANNEL PRESET display appears on the TV screen.
- Details for pre-tuning a built-in TV tuner are on page 15.

⑥Selection of play system

1. Press the MENU button during playback.

2. Press "6" to select the play system.

NTSC recorded tape

PAL/SECAM/MESECAM recorded tape

- When an NTSC recorded tape is played back;

{PAL 60} : Press "1" to select {PAL 60} when connecting this VTR to a PAL colour TV providing vertical sync adjustment circuitry (or volume) for 60 Hz.

{4.43 NTSC} : Press "2" to select {4.43 NTSC} when connecting the Multi-colour TV which does not have NTSC 3.58 but only 4.43.

{3.58 NTSC} : Press "3" to select {3.58 NTSC} when an NTSC 3.58 signal is output.

- When the PAL/SECAM/MESECAM recorded tape is played back;

{AUTO} : Press "1" to select {AUTO} ordinarily. If a normal picture does not appear when playing back, press "2" through "4"button to select {SECAM}, {MESECAM}, or {PAL}.

{SECAM} :Press "2" to select {SECAM} when you play back a SECAM recorded tape.

{MESECAM} : Press "3" to select {MESECAM} when you play back a MESECAM recorded tape.

{PAL} : Press "4" to select {PAL} when you play back a PAL recorded tape.

■ **GAME MODE**

You can enjoy the slot game with this VTR.

1. Press "7" to select game mode.

2. Press "1" for beginner, press "2" for general or press "3" for expert.

"777" appears on TV screen and you can enjoy the slot game. Refer to page 32 for details.